

THE MINERAL INDUSTRY OF

CROATIA

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Prior to the dissolution of Yugoslavia, Croatia was the country's chief producer of natural gas and petroleum, a leading producer of iron and steel, and a variety of industrial minerals that included bentonite, cement, and gypsum. However, from mid-1991 to early 1992, Croatia was actively involved in a civil war, mainly within the country's own borders. The largely Serbian population in Croatia's Kraina region declared independence from Croatia when certain issues concerning Serbian autonomy within this region apparently were not resolved. By mid-1992, the United Nations supervised a cessation of hostilities within Croatia on the basis of status quo. However, the economy of Croatia reportedly was severely damaged by the conflict. The country's minerals industry reportedly suffered extensive damage at facilities in the aluminum, petroleum and steel sectors, in addition to shortages of raw materials that were obtained in the past from other Republics of the former Yugoslavia. Reportedly, in 1994, the economic situation had not been significantly rectified and there was little activity in the country's minerals producing sectors.

In view of the civil war that was fought within Croatia for nearly 1 year, the country's Government presumably focused most of its attention on maintaining Croatia's integrity and independence. Some activities by the Government apparently were directed at maintaining mineral industry operations, when possible, to support the country's war effort and to help maintain socially acceptable levels of employment. However, few details were available during the year concerning specific Government policies that addressed both economic reform or long-term plans to rationalize the major enterprises in Croatia's mineral industry.

The production table for Croatia was compiled from data presented in a variety of statistical publications of the former Yugoslavia through 1992. The major portion of the country's production statistics, however, was obtained from "Statisticki Ljetopis 1992" published by the Central Bureau of statistics in Zagreb, Croatia, for a limited number of commodities through 1992. In addition, statistical production data was obtained from "Industrijska Proizvodnja," an annual statistical compendium published in Belgrade through 1990 that presented production data by constituent federal republics, and by total output for the former Yugoslavia. Although stoppages and dislocations in Croatia's mineral industry were reported from mid-1991 through 1992 by a variety of sources published outside of the former Yugoslavia, some production was believed to have

occurred at most of the country's mineral industry facilities, although at perhaps significantly reduced levels of output in 1992 and 1993. (See table 1.) Table 2 lists the apparent administrative bodies and subordinate production units for the main branches of the country's mineral industry in 1992. (See table 2.)

The former domestic Yugoslav market was an important element in Croatia's mineral trade. With the dissolution of Yugoslavia, commerce with the country's former domestic trading partners became classified as foreign trade. Moreover, trade with Croatia's former trading partners in the former constituent republics of Yugoslavia largely had become untenable because of the civil war in Croatia during 1991-92 and in the Republic of Bosnia and Herzegovina during 1991-93. Additionally, international trade embargoes were levied against several republics of the former Yugoslav federation that were Croatia's traditional commercial partners. Consequently, Croatia sought to orient its trade to a greater degree toward markets in Europe.

Energoinvest operated bauxite mines in the Republics of Bosnia and Herzegovina and Croatia. Jadranski Aluminium's (Jadral) operations were entirely in Croatia. The country's monohydrate (boehmitic) bauxite deposits were suitable for metallurgical end use.

At yearend 1991, Croatia reported extensive damage to the Boris Kidric aluminum smelter at Sibenik as a result of the fighting. The smelter reportedly remained closed through 1994 and Croatian authorities have not indicated when the operation would be restarted. Before the conflict damaged the Sibenik aluminum smelter, Croatia's primary aluminum smelting capacity was approximately 25% of the total for the former Yugoslavia.

Reportedly, Croatia's steel industry facilities were severely damaged in the fighting at the SP MK Zeljezare Sisak in the central part of the country and at the Jadranska Zelelzara at Split on the Dalmatian coast. Because of the damage sustained by the country's steel plants during the 1991-92 fighting and the loss of traditional markets in the former Yugoslavia, industry officials indicated that steel production at these facilities had declined by more than 50% compared with that of 1990. Dalmacija Dugi Rat Carbide and Ferro Alloy Works (Dalmacija), a producer of ferrochromium near Split in Croatia, also reported disruptions of production during the period of military conflict.

From December 1992 to November 1993, shortages of electric power forced the cessation of operations at

Dalmacija. Similarly, operations at the Pef Sibenik ferromanganese plant were interrupted for 6 months in 1993 because of power shortages in the Dalmatian provinces of Croatia.

Croatia has produced sufficient quantities of cement, clays, lime, nitrogen, pumice, stone, and other industrial minerals to meet most of the needs of the country's construction and construction materials industries, as well as some of the requirements of the domestic chemical industry. The importance of industrial minerals will grow because of post-war reconstruction requirements and rationalization of Croatia's economy and infrastructure.

Croatia's natural gas and petroleum industry apparently did not suffer sustained damage during the fighting from 1991 to 1992. The production of both natural gas and petroleum reportedly continued, but at somewhat lower levels of output. In 1993, industry spokespersons indicated that domestic production of natural gas and petroleum was sufficient to meet one-half of the country's needs for these fuels. The major foreign supplier of petroleum to Croatia during the year was Iran.

The transition of Croatia's economy to a market-based system will require a reevaluation of the country's mineral resources from a market perspective. Mineral resources in Croatia were assessed according to the Soviet classification system, which is not comparable to the system used in the United States. The economic criteria used in this system were designed for a centrally planned economic system that did not account for production costs in the same way as a market economy system. For a full explanation of the Soviet reserve classification system, refer to the reserve section in the report on Russia.

Croatia's inland system of transportation included 35,554 kilometers (km) of railroads, highways, and inland waterways. The railroad system consisted of 2,698 km of 1.435-gauge track, of which about 930 km was electrified. The highway and road system amounted to a total of 32,071 km of surface, of which paved surfaces amounted to 23,305 km; 8,439 km was gravel and 327 km was earth surfaced. The country's merchant marine fleet consisted of 11 ships totaling 131,880 deadweight tons. Pipelines for crude petroleum were 670 km in length, while those for refinery products and natural gas were 310 km and 20 km, respectively.

The future composition of Croatia's mineral industries will depend on the final resolution of the political and territorial dispute between the Government of Croatia and the leadership of the predominantly Serbian population in the Kraina region, and on the extent to which policies of the Government of Croatia will effect a transition of the country's economy to a market-based economic system.

¹ Text Prepared Mar. 1995.

Major Sources of Information

Central Bureau of Statistics
Zagreb, Croatia

Major Publications

Statisticki Ljetopis 1992 (Statistical Yearbook for 1992)
Zagreb, Croatia.

TABLE 1
CROATIA: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

| Commodity 3/ | 1990 | 1991 | 1992 | 1993 | 1994 /e |
|--|-----------|-----------|-----------|-----------|-----------|
| METALS | | | | | |
| Aluminum: | | | | | |
| Bauxite | 309,000 | 112,000 | 6,880 | 1,690 | 1,600 |
| Metal, ingot; primary and secondary | 74,000 | 54,500 | 20,400 | 26,000 | 25,000 |
| Iron and steel: | | | | | |
| Metal: | | | | | |
| Ferrochromium | 37,500 | 72,800 | 56,500 | 27,300 | 31,700 |
| Ferromanganese | 31,800 e/ | 22,000 e/ | 10,000 e/ | 10,000 | 10,000 |
| Ferrosilicomanganese | 60,600 e/ | 60,000 e/ | 15,000 e/ | 40,000 | 30,000 |
| Crude steel: | | | | | |
| From Siemens Martin furnaces | 253,000 | 94,400 | -- | -- | -- |
| From electric furnaces | 170,000 | 120,000 | 102,000 | 73,800 | 73,000 |
| Total | 423,000 | 214,000 | 102,000 | 73,800 | 73,000 |
| Silver e/ kilograms | 2,000 | 1,600 | 800 | 500 | 500 |
| INDUSTRIAL MINERALS | | | | | |
| Barite concentrate e/ | 2,500 | 2,200 | 1,500 | 1,500 | 1,500 |
| Cement thousand tons | 2,650 | 1,710 | 1,770 | 1,680 | 1,700 |
| Clays: e/ | | | | | |
| Bentonite | 30,000 | 15,000 | 10,000 | 10,000 | 10,000 |
| Ceramic clay | 10,000 | 15,000 | 10,000 | 10,000 | 10,000 |
| Fire clay, crude | 43,000 | 50,000 | 30,000 | 30,000 | 30,000 |
| Gypsum: e/ | | | | | |
| Crude | 99,000 | 80,000 | 50,000 | 50,000 | 50,000 |
| Calcined | 11,000 | 11,000 | 7,000 | 7,000 | 6,000 |
| Lime thousand tons | 436 | 261 | 144 | 156 | 150 |
| Nitrogen: N content of ammonia do. | 345 | 348 | 426 | 345 | 300 |
| Pumice and related materials, volcanic tuff e/ | 700 | 650 | 600 | 500 | 500 |
| Quartz, quartzite, glass sand | 234,000 | 159,000 | 39,600 | 23,300 | 25,000 |
| Salt, all sources | 24,000 | 18,300 | 28,600 | 29,600 | 30,000 |
| Sand and gravel, excluding glass sand e/ thousand cubic meters | 3,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| Stone, excluding quartz and quartzite: | | | | | |
| Dimension: Crude: | | | | | |
| Ornamental cubic meters | 1,710,000 | 1,510,000 | 1,180,000 | 1,130,000 | 1,100,000 |
| Crushed and brown, n.e.s. thousand cubic meters | 6,250 | 4,450 | 3,280 | 4,160 | 4,000 |
| Other e/ cubic meters | 45,000 | 30,000 | 25,000 | 20,000 | 20,000 |
| Sulfur, byproduct of petroleum e/ | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 |
| MINERAL FUELS AND RELATED MATERIALS | | | | | |
| Carbon black | 30,600 | 18,800 | 13,500 | 17,100 | 15,000 |
| Coal: | | | | | |
| Bituminous thousand tons | 155 | 146 | 120 | 105 | 100 |
| Brown do. | | | | | |
| Lignite do. | | | | | |
| Coke do. | 556 | 442 | 409 | 420 | 400 |
| Natural gas, gross production million cubic meters | 1,990 | 1,840 | 1,820 | 2,070 | 2,000 |
| Petroleum: e/ | | | | | |
| Crude: | | | | | |
| As reported thousand tons | 2,080 | 1,900 | 1,740 | 1,730 | 1,700 |
| Converted thousand 42 gallon barrels | 15,400 | 14,100 | 14,100 | 12,800 | 12,000 |

e/ Estimated.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits.

2/ Table includes data available through Mar. 1995.

3/ In addition to commodities listed, common clay also was produced, but available information was inadequate to make reliable estimates of output levels.

TABLE 2
CROATIA: STRUCTURE OF THE MINERAL INDUSTRY FOR 1994

(Thousand metric tons unless otherwise specified)

| Commodity | | Major operating companies | Location of main facilities | Annual capacity |
|-------------------|--------------------------|--|---|-----------------|
| Aluminum | | Boris Kidric, Tvornica Lasih Metala | Smelter at Sibenik, Croatia | 75 |
| Bauxite | | Jadral, Jadranski Aluminijum | Mines in at Obrovac, Drnis and other locations | 450 |
| Coal: | | | | |
| Bituminous | | Istarski Ugljenokopi Rasa | Mines at Labin and Potpican. | 500 |
| Cement | | Dalmacija Cement | Partizan plant at Kasel Sucurac | 1,525 |
| Do. | | do. | Prvoborac plant at Solin | 884 |
| | | | "10 Kolovoz" plant at Solin Majdan, | 440 |
| Do. | | do. | Renko Spèrac plant at Omis | 140 |
| Natural gas | million cubic feet | Industrija Nafte (INA) | Natural gasfields in Bogsic Lug, Molve, and others | 70,000 |
| Petroleum, crude: | thousand barrels per day | do. | Oilfields in Croatia and Slovenia: Benicanci, Zutica, Struzec, Ivanic Grad, Lendava, and others | 70 |
| | | do. | Industrija Nafte (INA): Refineries at Urinj and Rijeka | 160 |
| | | do. | do. Refinery at Sisak | 150 |
| Pig iron | | Metalurški Kombinat "Željezara Sisak" | 2 blast furnaces at Sisak | 235 |
| Salt | cubic meters per year | Solana "Pag," Solana "Ante Festin" | Marine Salt: Pag Island | 13 |
| Steel, crude | | SP MK Željezare Sisak | Plant at Sisak | 401 |
| Do. | | Jadranska Zeležezara Split | Plant at Split | 120 |